IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Original): A pulse modulator, comprising:

a pulse generating circuit that generates a periodic pulse;

a differentiating circuit that differentiates the pulse from the pulse generating circuit so as to output a differentiated wave;

an oscillating circuit that generates an oscillated wave with modulating frequency; and

a switching circuit that switches whether the oscillated wave from the oscillating circuit is output according to the differentiated wave from the differentiating circuit so as to output a modulated pulse wave.

Claim 2 (Original): The pulse modulator according to claim 1, wherein the differentiating circuit is a primary high-pass filter.

Claim 3 (Original): The pulse modulator according to claim 1, further comprising a clipping circuit that limits a crest value between the differentiating circuit and the switching circuit.

Claim 4 (Original): A pulse modulator, comprising:

a pulse generating circuit that generates a periodic pulse;

a band-pass circuit that allows a specified frequency component of the pulse from the pulse generating circuit to pass therethrough;

an oscillating circuit that generates an oscillated wave of modulating frequency; and

a switching circuit that switches whether the oscillate wave from the oscillating circuit is output according to an output from the band-pass circuit so as to output a modulated pulse wave.

Claim 5 (Original): The pulse modulator according to claim 4, wherein the band-pass circuit is a secondary band-pass filter.

Claim 6 (Original): The pulse modulator according to claim 4, further comprising a clipping circuit that limits a crest value between the band-pass circuit and the switching circuit.

Claim 7 (Currently Amended): A pulse wave radar device, comprising:

the pulse modulator according to ~~any one of claims 1 to 6~~ claim 1;

a transmitting antenna that transmits a modulated pulse wave from the pulse modulator;

a receiving antenna that receives a receiving wave reflected from an object; and

a receiving circuit that detects the received wave from the receiving antenna so as to amplitude-demodulate to a corresponding pulse.

Claim 8 (Original): The pulse wave radar device according to claim 7, further comprising a time calculating circuit that detects time from transmission of the modulated pulse wave to reception of the received wave so as to calculate round-trip propagation time up to the object.

Claim 9 (Currently Amended): The pulse wave radar device according to claim 7, wherein the receiving circuit detects the received wave from the receiving antenna and a modulated pulse ~~waves~~ wave which leaks in the pulse wave radar device so as to amplitude-demodulate to a corresponding pulse.

Claim 10 (Original): The pulse wave radar device according to claim 9, further comprising a time calculating circuit that detects an interval from the time the receiving circuit amplitude-demodulates the modulated pulse wave to the corresponding pulse to the time the receiving circuit amplitude-demodulates the received wave to the corresponding pulse so as to calculate round-trip propagation time up to the object.

Claim 11 (Original): The pulse wave radar device according to claim 7, further comprising:

a branching circuit that branches a part of the modulated pulse wave from the pulse modulator so as to output it,

wherein the receiving circuit detects the received wave from the receiving antenna and the modulated pulse wave from the branching circuit so as to amplitude-demodulate to a corresponding pulse.

Claim 12 (Original): The pulse wave radar device according to claim 11, further comprising a time calculating circuit that detects an interval from the time the receiving circuit amplitude-demodulates the modulated pulse wave to the corresponding pulse to the time the receiving circuit amplitude-demodulates the received wave to the corresponding pulse so as to calculate round-trip propagation time up to the object.

Claim 13 (New): A pulse wave radar device, comprising:

the pulse modulator according to claim 4;

a transmitting antenna that transmits a modulated pulse wave from the pulse modulator;

a receiving antenna that receives a receiving wave reflected from an object; and

a receiving circuit that detects the received wave from the receiving antenna so as to amplitude-demodulate to a corresponding pulse.

Claim 14 (New): The pulse wave radar device according to claim 13, further comprising a time calculating circuit that detects time from transmission of the modulated pulse wave to reception of the received wave so as to calculate round-trip propagation time up to the object.

Claim 15 (New): The pulse wave radar device according to claim 13, wherein the receiving circuit detects the received wave from the receiving antenna and a modulated pulse wave which leaks in the pulse wave radar device so as to amplitude-demodulate to a corresponding pulse.

Claim 16 (New): The pulse wave radar device according to claim 13, further comprising a time calculating circuit that detects an interval from the time the receiving circuit amplitude-demodulates the modulated pulse wave to the corresponding pulse to the time the receiving circuit amplitude-demodulates the received wave to the corresponding pulse so as to calculate round-trip propagation time up to the object.

Claim 17 (New): The pulse wave radar device according to claim 13, further comprising:

a branching circuit that branches a part of the modulated pulse wave from the pulse modulator so as to output it,

wherein the receiving circuit detects the received wave from the receiving antenna and the modulated pulse wave from the branching circuit so as to amplitude-demodulate to a corresponding pulse.

Claim 18 (New): The pulse wave radar device according to claim 13, further comprising a time calculating circuit that detects an interval from the time the receiving circuit amplitude-demodulates the modulated pulse wave to the corresponding pulse to the time the receiving circuit amplitude-demodulates the received wave to the corresponding pulse so as to calculate round-trip propagation time up to the object.